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Outcomes: part II

Emma Frew

Introduction to health economics, MSc HEHP

Obtaining QoL values for QALYs

- Value judgement
- Search literature for published values
- Measure values
  - Direct valuation – by patients
    - Visual analogue
    - Standard Gamble
    - Time trade-off
  - Indirect valuation – by patients, public, others
    - Using standard tariffs for QoL instruments
    - Using direct valuation methods with scenarios

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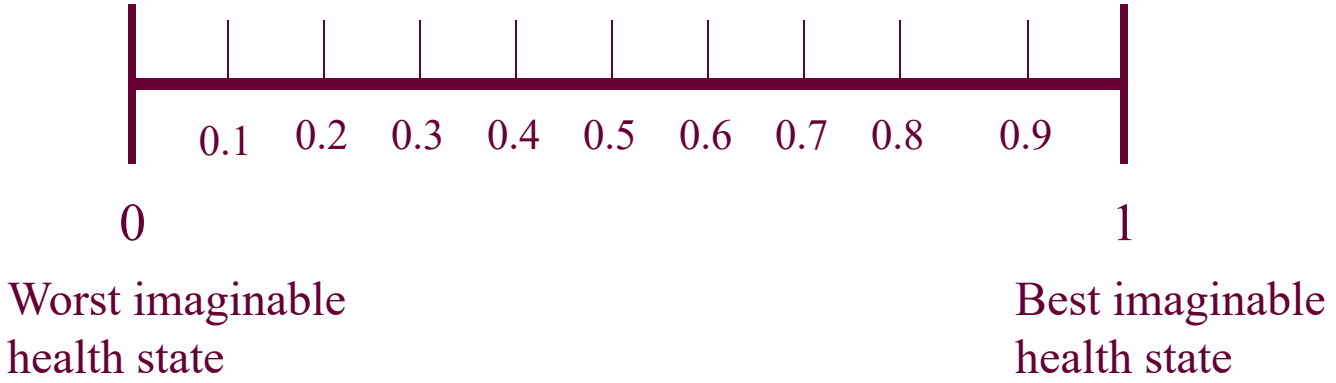
Visual analogue scale

- Many variants
- 'Thermometer' scale is the one mainly used.



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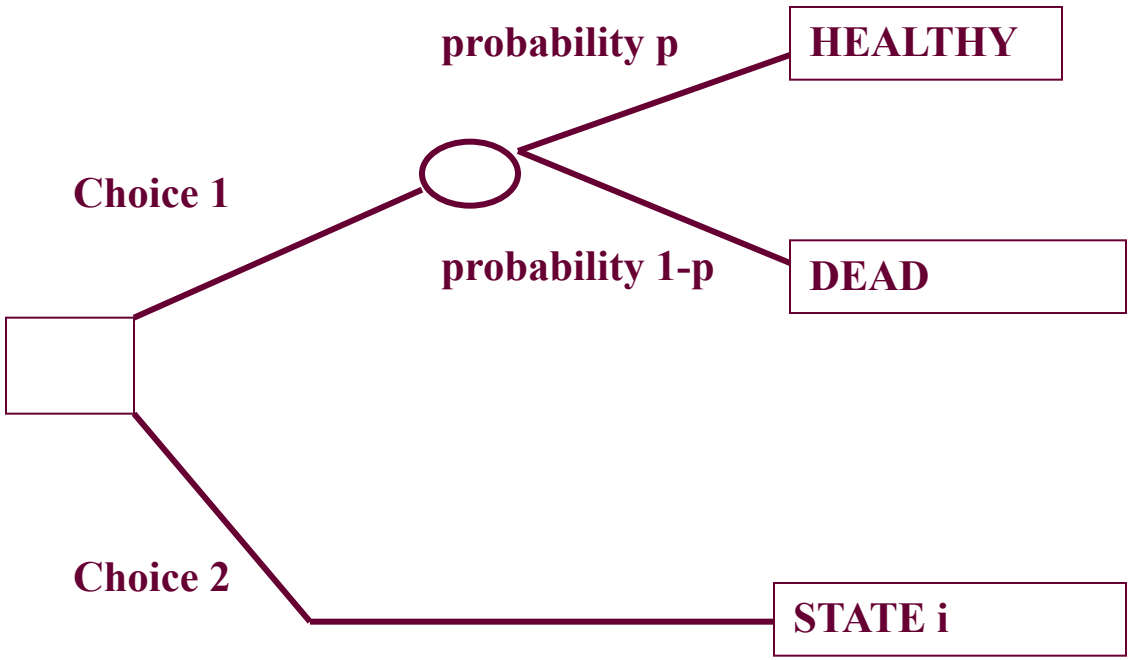
Standard Gamble



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Standard Gamble

- Probability p = QoL measure
- Advantages:
  - Based on axioms of utility theory
- Disadvantages:
  - Not many chronic diseases that approximate gamble
  - Subjects may find concept of probability difficult to understand

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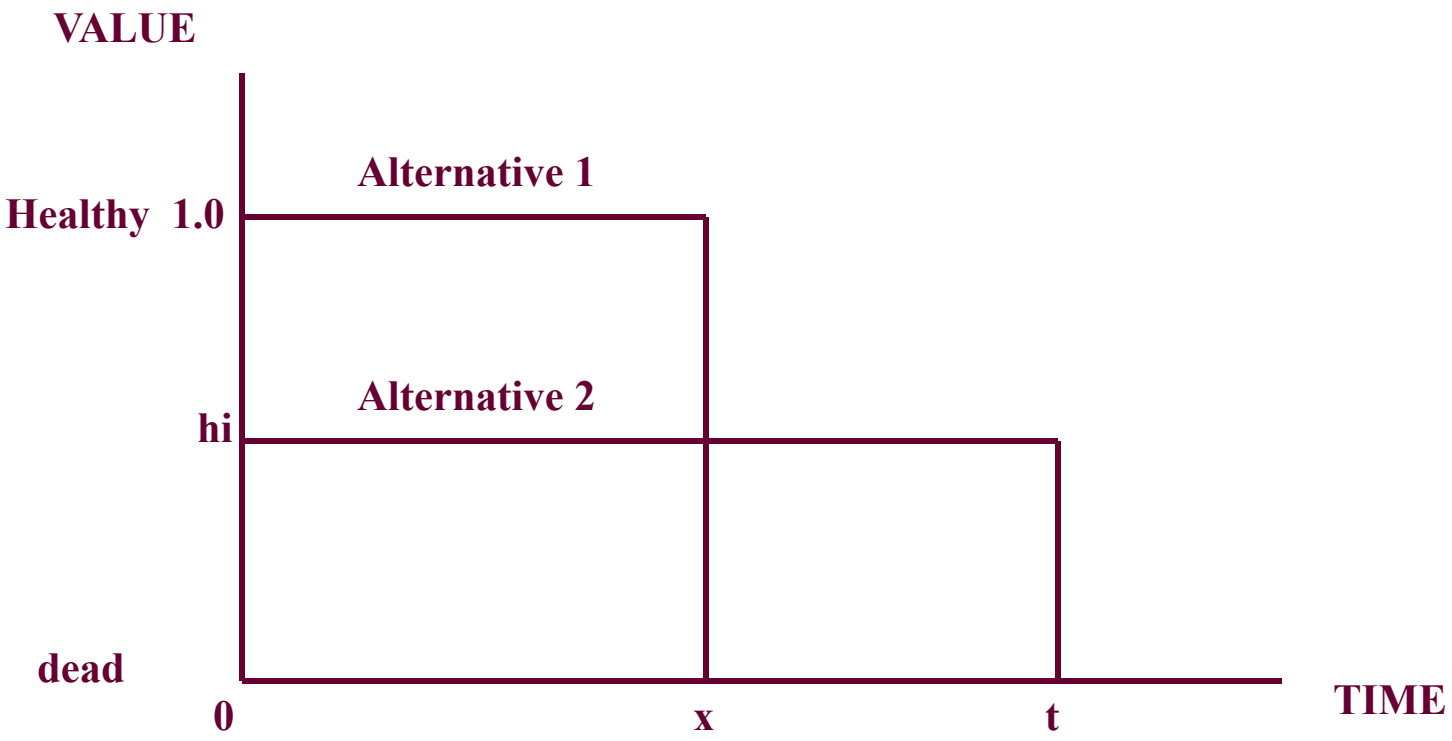
Time Trade-Off



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Measuring outcomes: exercises 2 & 3

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Challenges with QALYs: QoL measures

- Validity – does the instrument accurately measure what it is supposed to measure?
- Reliability – do you consistently obtains the same results using the instrument?
- Sensitivity to change – can the instrument measure (clinically important?) change?
- Feasibility of use – can the instrument be easily used with the population of interest?

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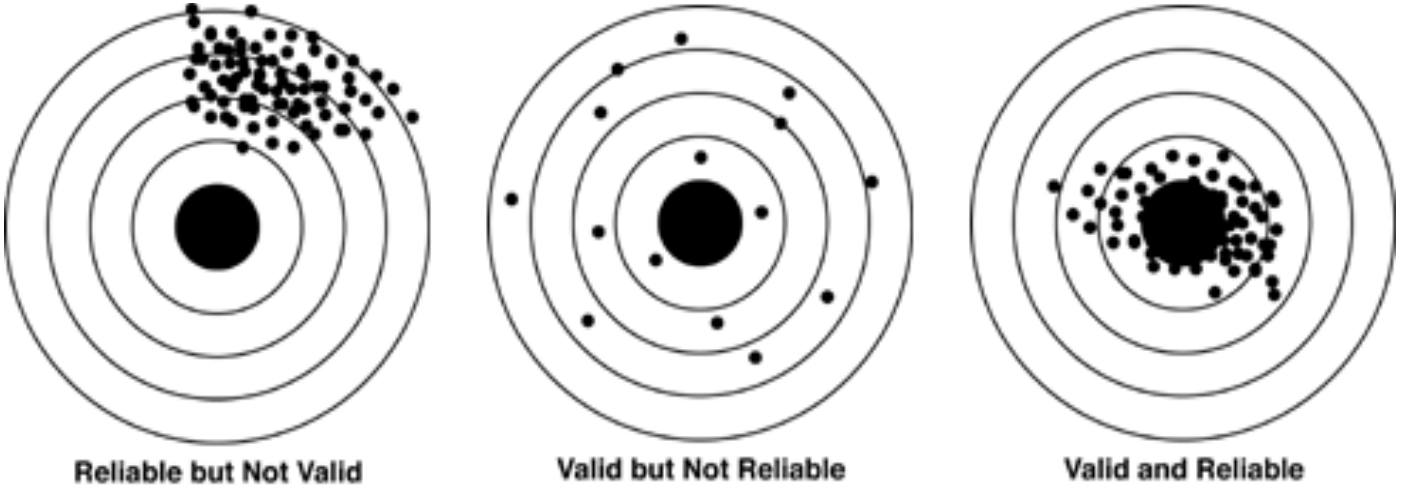
The relationship between validity and reliability



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Validity of quality of life questionnaires

- No gold standard measure of health to compare EQ-5D to.
- Accumulate evidence over a range of aspects of validity:
  - *Content validity*: sufficient items and coverage?
  - *Construct validity*: anticipated relationships with other variables (e.g. disability, age, long standing illness are as anticipated)?
  - *Convergent validity*: correlates with other measures of same phenomenon?

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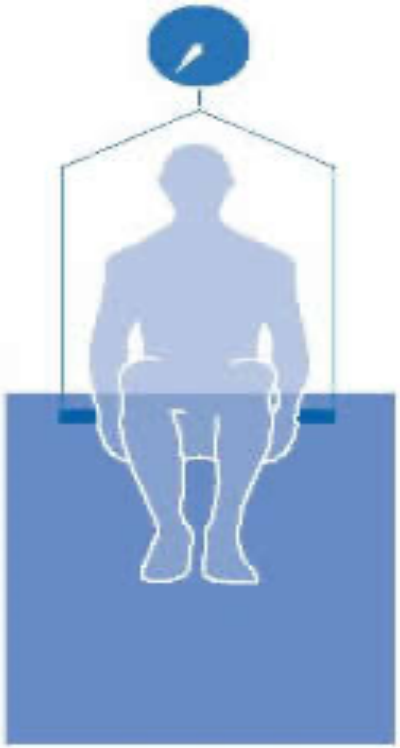
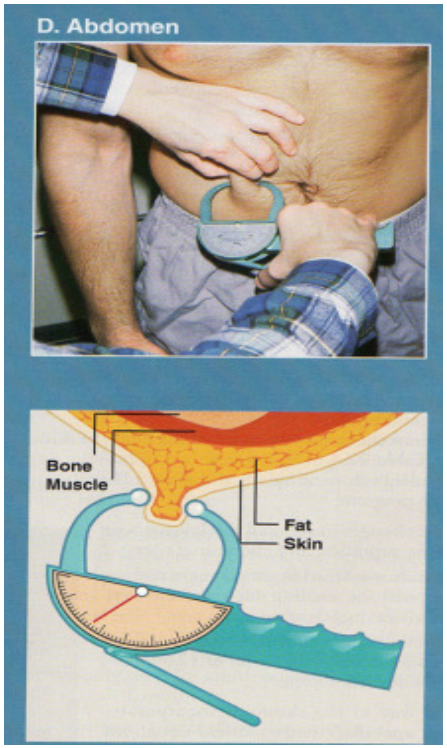
Potential trade-off between sensitivity and feasibility

Hydrodensitometry



Skin fold measure



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Sensitivity and feasibility of quality of life questionnaires

- **Sensitivity:**

  "The EQ-5D …[is] more responsive than any of the other measures, except pain and doctor-assessed disease activity"

  [Hurst *et al*. (1997) *Brit. J. of Rheum.*]

  "The weighted TTO-score of EuroQoL-5D, … did however not correspond with these [reduced psychotic symptoms] changes, which indicates that it is less sensitive to changes in social and psychological well-being." [van de Willige *et al.* (2005) *Qual. Life Res*].

- **Feasibility:**
  - Patient burden (EQ-5D has 5 questions each with 3 possible responses).
  - Valuation burden (EQ-5D has 243 possible health state permutations/ SF-6D has 18,000 possible permutations).

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Challenges with QALYs: theory

- Assumes health status can be measured on a cardinal scale
- Assumes it is possible to equate x years in less than full health with y years in full health, where y<x
- Assumes can compare utility scores across individuals
- Possible to equate same state if one person deteriorating and the other improving (independence assumption)
- MU of health is constant, i.e. 2 QALYs to 1 person is equivalent to 1 QALY each to 2 people

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Challenges with QALYs: methodology

- Possible to equate to death when death is unknown
- Different methods lead to different values
- Description of alternatives leads to different values
- Values creep towards 1 as health deteriorates with age
- Values differ depending upon the duration of the state
- Framing effects

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Challenges with QALYs: ethical

- Life saving should always be a priority?
- Ageist?
- Attributes greater importance to maximising health than how that health is distributed
- Potential for discrimination?
- “Double jeopardy”?

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Measuring outcomes: discussion

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Selected reading

TEXTS

- **Drummond M, Sculpher M, Torrance G, O'Brien B, Stoddart G. Methods for the Economic Evaluation of Health Care Programmes. 3rd ed. Oxford: Oxford University Press; 2005. Chapter 6.**
- **Morris S, Devlin N, Parkin D. Economic analysis in health care. Chichester, UK: John Wiley & Sons, Ltd; 2007. Chapter 10.**
- **Brazier J, Ratcliffe J, Salomon J, Tsuchiya A. Measuring and valuing health benefits for economic evaluation. Oxford: Oxford University Press; 2007.**

EARLY REFERENCES TO QALY METHODOLOGY

- **Williams A. Economics of coronary artery bypass grafting. British Medical Journal 1985; 291:326-329.**
- **Klarman H, Francis J, Rosenthal G. Cost-effectiveness analysis applied to the treatment of chronic renal disease. Medical Care 1966; 6(1):48-54.**
- **Torrance G. Measurement of health state utilities for economic appraisal. Journal of Health Economics 1986; 5:1-30.**

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Selected reading II

OUTCOME MEASURES AND VALUATION OF HEALTH STATES

- **Brazier J, Roberts J, Deverill M. The estimation of a preference-based measure of health from the SF-36. Journal of Health Economics 2002; 21:271-292.**
- **Brooks R. EuroQol: the current state of play. Health Policy 1996; 37:53-72.**
- **Richardson J. Cost Utility Analysis: What Should Be Measured? Social Science and Medicine 1994; 39(1):7-21.**
- **Robinson A, Dolan P, Williams A. Valuing health status using VAS and TTO: what lies behind the numbers? Social Science and Medicine 1997; 45(8):1289-1297.**
- **Dolan P, Gudex C, Kind P, Williams A. The time trade-off method: results from a general population study. Health Economics 1996; 5(2):141-154.**

VALIDITY AND ETHICS OF QALY METHODLOGY

- **Brazier J, Deverill M. A checklist for judging preference-based measures of health related quality of life: learning from psychometrics. Health Economics 1999; 8:41-51.**
- **Loomes G, McKenzie L. The use of QALYs in health care decision making. Social Science and Medicine 1989; 28(4):299-308.**
- **Harris J. QALYfying the value of life. Journal of Medical Ethics 1987; 13:117-123.**

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